Claims

What is claimed is:

1. A device, comprising:

a first fiber to carry a first optical beam;

a second fiber to carry a second optical beam;

a reflector positioned to receive both said first and said second optical beams and rotatable to change reflected directions of said first and said second optical beams;

a rotational actuator engaged to said reflector to control a rotational position of said reflector in response to a control signal;

an optical detector positioned relative to said reflector to receive said first optical beam reflected from said reflector at a first rotational position and to receive said second optical beam reflected from said reflector at a second rotational position;

a focusing lens positioned between said reflector and said optical detector to focus said first and said second optical beams; and

a control module to produce said control signal in response to an input to switch said rotational actuator from said first rotational position to said second

rotational position when said input indicates that said optical detector fails to receive said first optical beam from said first fiber.

2. The device as in claim 1, wherein said first and said second fibers form an angle toward each other and said device further comprising a first optical collimator lens positioned between said reflector and said first fiber to collimate said first optical beam and a second optical collimator lens positioned between said reflector and said second fiber to collimate said second optical beam.

3. The device as in claim 1, further comprising a common optical collimator lens positioned between said reflector and said first and said second fibers to receive and collimate both said first and said second optical beams.

4. The device as in claim 3, wherein said first and said second fibers are parallel to each other.

5. The device as in claim 1, further comprising an aperture located between said optical detector and said focusing lens to transmit light from said first fiber and

block light from said second fiber when said rotational actuator is set in said first rotational position and to transmit light from said second fiber and block light from said first fiber when said rotational actuator is set in said second rotational position.

6. The device as in claim 1, wherein said actuator includes a galvanometer.

7. The device as in claim 1, wherein said actuator includes a MEMS actuator.

8. The device as in claim 1, wherein said actuator is an electrostatic actuator.

9. The device as in claim 1, wherein said actuator is a piezo-electric actuator.

10. The device as in claim 1, wherein said actuator is an electromagnetic actuator.

11. The device as in claim 1, further comprising a second reflector that is fixed relative to and rotates with said reflector, said second reflector having a reflective

surface facing a direction opposite to a reflective surface of said reflector, the device further comprising:

a monitor light source to produce a monitor beam incident onto said second reflector; and

a monitor detector disposed relative to said second reflector to receive a reflection of said monitor beam off said second reflector to measure a position of said reflection on a detector surface of said monitor detector to determine a rotational position of said second reflector and hence a rotational position of said reflector,

wherein said control module is coupled to receive a detector signal from said monitor detector to control said control signal to control an orientation of said reflector.

12. The device as in claim 11, wherein said monitor detector is a position-sensitive detector.

13. A device, comprising:

a first fiber to carry a first optical beam;

a second fiber positioned parallel to said first fiber to carry a second optical beam;

an optical detector;

a reflector oriented about 45 degrees with respect to said fibers and movably positioned at a first position to reflect said first optical beam into said optical detector while not receiving said second optical beam and at a second, different position to reflect said second optical beam into said optical detector while not receiving said first optical beam;

an actuator engaged to said reflector to move said reflector between said first and said second positions in response to a control signal; and

a control module to produce said control signal in response to an input to control said actuator to move said reflector from said first position to said second position along a direction perpendicular to said fibers when said input indicates that said optical director fails to receive said first optical beam from said first fiber.

14. The device as in claim 13, further comprising a common focusing lens positioned between said reflector and said optical detector to focus light from said reflector to said optical detector.

15. The device as in claim 13, further comprising:

a first optical collimator lens between said first fiber and said first position to collimate said first optical beam; and

a second optical collimator lens between said second fiber and said second position to collimate said second optical beam.

16. A device, comprising:

a first fiber to carry a first optical beam;

a second fiber to carry a second optical beam;

a reflector positioned to receive both said first and said second optical beams and rotatable to change reflected directions of said first and said second optical beams;

an optical detector positioned relative to said reflector to receive said first optical beam reflected from said reflector at a first rotational position of said reflector and to receive said second optical beam reflected from said reflector at a second rotational position of said reflector;

a rotational actuator engaged to said reflector to control a rotational position of said reflector in response to a control signal;

an optical monitoring mechanism to optically measure said rotational position of said reflector and to produce a monitor signal indicative of a measured rotational position; and

a control module to produce said control signal in response to an input to switch said rotational actuator from said first rotational position to said second rotational position when said input indicates that said optical director fails to receive said first optical beam from said first fiber, said control module further coupled to receive said monitor signal form said optical monitoring mechanism to adjust said control signal for correcting a deviation of said reflector from a desired rotational position according to said monitor signal.

17. The device as in claim 16, wherein said optical monitoring mechanism comprises:

a second reflector that is fixed relative to and rotates with said reflector, said second reflector having a reflective surface facing a direction opposite to a reflective surface of said reflector, the device further comprising:

a monitor light source to produce a monitor beam incident onto said second reflector; and

a monitor detector disposed relative to said second reflector to receive a reflection of said monitor beam off said second reflector to measure a position of said reflection on a detector surface of said monitor detector to determine a rotational position of said second reflector and hence a rotational position of said reflector.

18. The device as in claim 16, wherein said actuator includes an electromagnetic actuator.

19. The device as in claim 18, wherein said actuator includes a galvanometer.

20. The device as in claim 16, wherein said actuator includes an electrostatic actuator.